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**EP 0 763 344 A2**

(12)

## EUROPEAN PATENT APPLICATION

(43) Date of publication:  
19.03.1997 Bulletin 1997/12

(51) Int Cl.<sup>6</sup>: **A61B 8/00**

(21) Application number: **96306626.1**

(22) Date of filing: **12.09.1996**

(84) Designated Contracting States:  
**DE FR IT**

(30) Priority: **13.09.1995 KR 9529912**

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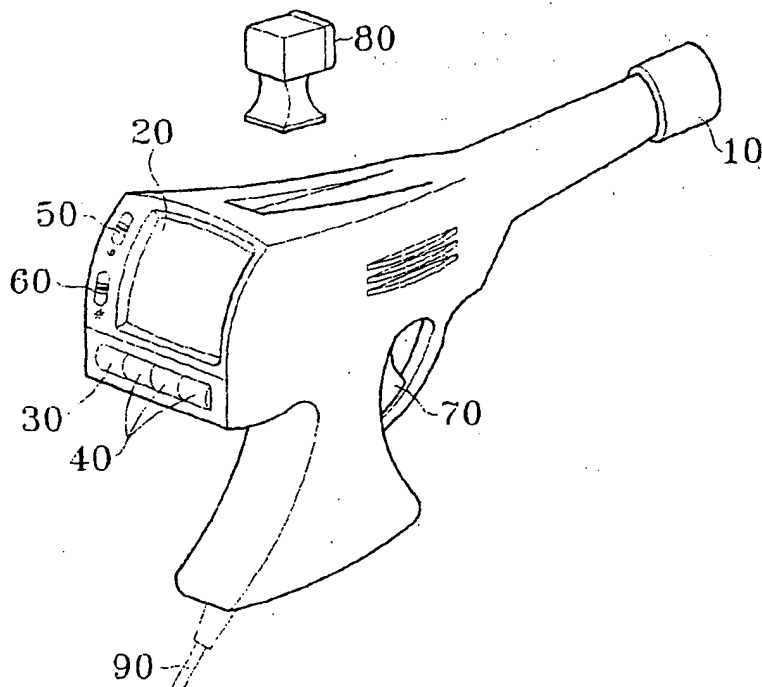
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(54) **Portable ultrasonic diagnostic apparatus**

(57) A portable ultrasonic diagnostic apparatus includes a LCD display 20 for displaying the result of the ultrasonic diagnosis and a single element probe 10 as

a probe in a pistol-shaped case, thereby minimising the volume and the weight of the ultrasonic diagnostic apparatus and providing increased convenience in use.

FIG. 1



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## Description

The present invention relates to a portable ultrasonic diagnostic apparatus, and more particularly, to a pistol-shaped portable ultrasonic diagnostic apparatus.

An ultrasonic diagnostic apparatus scans an ultrasonic wave into a human body and converts information loaded on a reflected ultrasonic wave into an electrical signal using a piezoelectric effect of a probe, to thereby display the electrical signal on a screen. Therefore, the ultrasonic diagnostic apparatus can enable a user to obtain information of the inside of a human body, without cutting out the affected parts of the human body.

However, a conventional ultrasonic diagnostic apparatus is bulky and weighty, which should be improved. Even in a compact model, it weighs more than 10Kg, which makes it difficult to move it and impossible to carry it.

To solve the above problem, it is an object of the present invention to provide a portable ultrasonic diagnostic apparatus.

To accomplish the above object of the present invention, there is provided a portable ultrasonic diagnostic apparatus comprising:

a pistol-shaped case;  
a liquid crystal display (LCD), which is installed in a portion of the pistol-shaped case, for displaying a result of ultrasonic diagnosis thereon; and  
a single element probe which is installed in a muzzle portion of the pistol-shaped case and is used as a probe.

FIG. 1 is a schematic view of a portable ultrasonic apparatus according to the present invention.

A preferred embodiment of the present invention will be described below in more detail, by way of example only, with reference to the accompanying diagrammatic drawing.

A probe 10 scans an ultrasonic wave and converts a reflected ultrasonic wave into an electrical signal. It is preferable that a single element probe is used as the probe to minimise the volume and weight of the ultrasonic diagnostic apparatus.

An electronic circuit for processing an analog signal and a digital signal to perform ultrasonic diagnosis is installed in the body of the pistol-shaped ultrasonic diagnostic apparatus. A display 20 displays an ultrasonic diagnosis result of which the signal has been processed, on a screen. It is preferable that such a display is a LCD display. Since the LCD display has a small and thin screen, it is appropriate for a portable ultrasonic diagnostic apparatus. A user can adjust the brightness of the screen on which the image is displayed, using a brightness control key 50. Also, the user can adjust the contrast of shape of the displayed image using a contrast control key 60.

Power for driving the ultrasonic diagnostic appara-

tus is supplied via a power cable 90 or using a battery such as a dry cell. The user drives the portable ultrasonic diagnostic apparatus by depressing a power key 30. Function select keys 40 enable the user to select various functions of the ultrasonic diagnostic apparatus. The portable ultrasonic diagnostic apparatus according to the present invention can possess a picture stop function as an auxiliary function. That is, using a freeze key 70, a particularly displayed picture can be stopped during the ultrasonic diagnosis, or the stopped picture can be changed into a picture which is being actually scanned. Also, the portable ultrasonic diagnostic apparatus according to the present invention includes a detachable lamp 80 to enable the user to facilitate diagnosis in a dark place.

As described above, the portable ultrasonic diagnostic apparatus according to the present invention includes a LCD display for displaying the result of the ultrasonic diagnosis and a single element probe as a probe in a pistol-shaped case, thereby minimising the volume and the weight of the ultrasonic diagnostic apparatus and allowing more convenient use.

The foregoing description has been given by way of example only and it will be appreciated by a person skilled in the art that modifications can be made without departing from the scope of the present invention.

## Claims

1. A portable ultrasonic diagnostic apparatus characterised by comprising:

a pistol-shaped case;  
a probe (10) which is formed in a muzzle of said pistol-shaped case;  
an electronic circuit, which is installed in said case, for converting a frequency signal supplied from said probe into a video signal to be displayed;  
a display (20), which is installed in a portion opposite to said probe on said pistol-shaped case, for displaying the video signal supplied from said electronic circuit thereon; and  
a user manipulation keypad (30, 40, 50, 60) which is installed in a predetermined portion to facilitate a user to operate the ultrasonic diagnostic apparatus or to select various functions of the ultrasonic diagnostic apparatus.

2. The portable ultrasonic diagnostic apparatus according to claim 1, wherein said probe is a single element probe.

3. The portable ultrasonic diagnostic apparatus according to claim 1 or claim 2, wherein said display is a liquid crystal display.

4. The portable ultrasonic diagnostic apparatus according to any preceding claim, further comprising a freeze key (70), located in a position where a convenient use of the user is enabled, for selecting a function of stopping a particularly displayed picture and changing the stopped picture into an actually scanned picture. 5
5. The portable ultrasonic diagnostic apparatus according to any preceding claim, further comprising a lamp (80) for facilitating diagnosis in a dark place. 10
6. The portable ultrasonic diagnostic apparatus according to claim 5, wherein said lamp is detachable from said pistol-shaped case. 15

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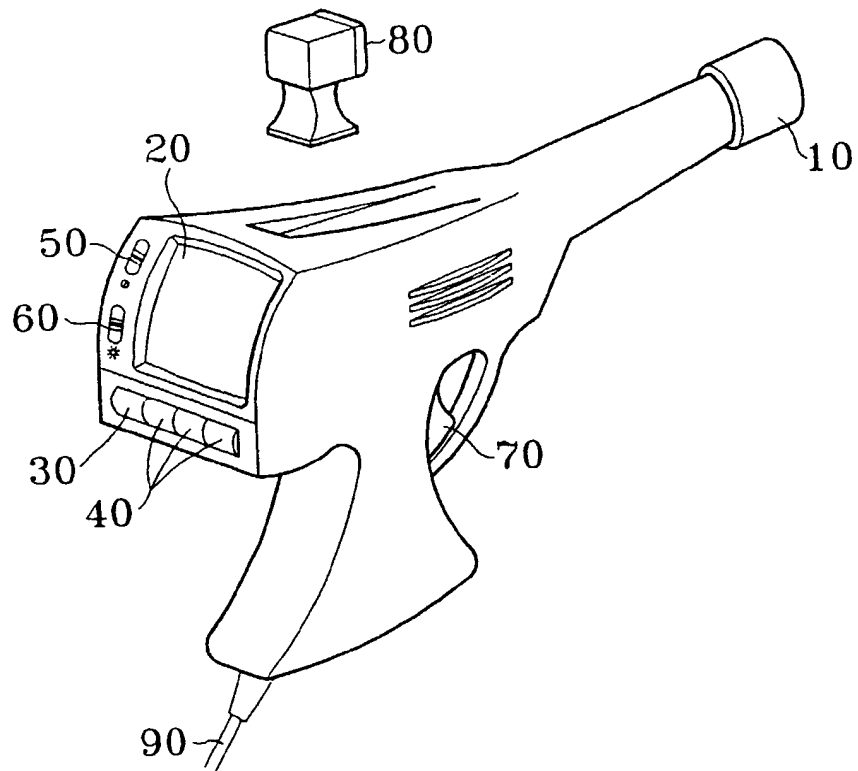
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FIG. 1



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(11)

**EP 0 763 344 A3**

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
24.02.1999 Bulletin 1999/08

(51) Int Cl.<sup>6</sup>: **A61B 8/00**

(43) Date of publication A2:  
19.03.1997 Bulletin 1997/12

(21) Application number: **96306626.1**

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(30) Priority: **13.09.1995 KR 9529912**

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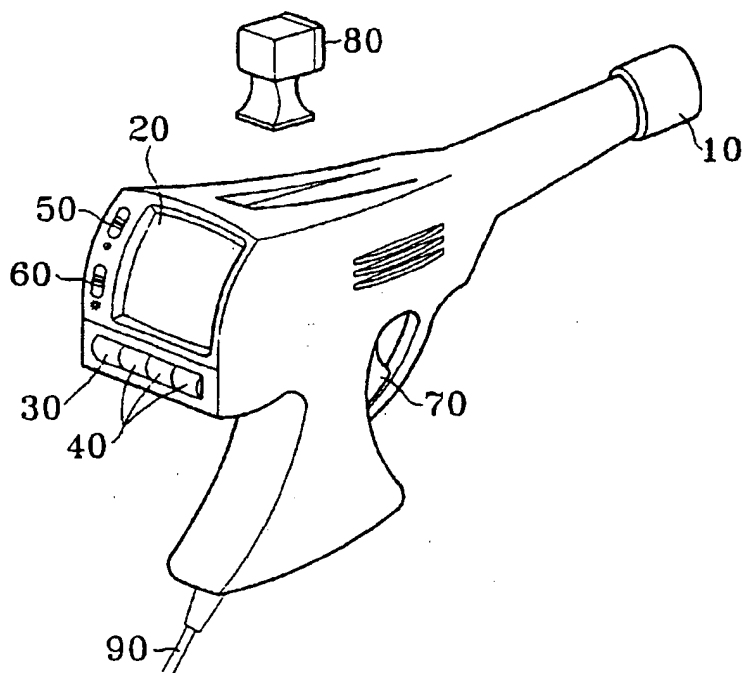
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**FIG. 1**



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# EUROPEAN SEARCH REPORT

Application Number  
EP 96 30 6626

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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 6 January 1999	Examiner Manschot, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons S : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P0401)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 96 30 6626

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